

### REMARKS

Claims 2-11, 27-28 and 30 are pending for further examination. Claims 22-25 were withdrawn as the result of a restriction requirement.

The Office action alleges that claim 5 is unclear as to the reference point from which the first and second reflective regions are further from. Claim 5 has been amended to clarify the subject matter claimed.

In the Office action, the claims were rejected as follows:

\* Claims 1, 2, 26 were rejected as anticipated by U.S. Patent Application No. 2002/0196500 (Cohen).

\* Claims 3-21 were rejected as unpatentable over U.S. Patent Application No. 2002/0196500 (Cohen).

\* Claims 27-29 were rejected as unpatentable over U.S. Patent No. 5,696,862 (Hauer).

In view of the amendments and following remarks, applicant respectfully requests reconsideration.

#### Claims 4-11 are patentable

Applicant submits that the subject matter of claim 4 would not have been obvious from the Cohen et al. patent.

Claim 4, which has been rewritten in independent form, recites an optical module that includes a substrate carrying a light emitting device and an optical monitor; and a plate that is positioned in a path of light emitted by the light emitting device. The plate is transparent to light emitted by the light emitting device to allow some of the light from the light emitting device to be transmitted through the plate. The plate includes reflective regions that provide substantially total internal reflection of light impinging on those regions. A first one of the reflective regions is located to reflect some of the light emitted by the light emitting device. A second one of the

reflective regions is located to receive light reflected by the first reflective region and to direct the received light to the optical monitor.

The Cohen et al. patent discloses a solid-state laser (62) and monitor photo-detector (64) mounted on a substrate (*see* FIG. 4). A protective cover (71) is formed to direct the laser in a particular direction. Surface 76 of the cover is partially coated with a highly reflective material coated to create a beam-splitter to reflect some of the light and pass some of the light.

The Office action alleges that it would have been obvious to use angled facets that provide total internal reflection as the first and second reflective regions disclosed by the Cohen patent. That is incorrect. As FIG. 4 of the Cohen patent indicates, the beam-splitter surface (76) is intended to allow some of the emitted light to pass through the reflective surface. In fact, FIG. 2 illustrates that the light that passes through the reflective surface is intended to be transmitted to an external location via a lens (30). (*See also* Detailed Description, par. 34.)

Therefore, there would have been no suggestion or motivation to utilize substantially total internal reflection on the reflective surface 76 of the Cohen patent, as recited in pending claim 4. Doing so would prevent any of the light from passing through the reflective surface so that it can be transmitted to the external location. In the context of the Cohen patent, that would make no sense.

At least for the foregoing reasons, claim 4, as well as its dependent claims, is patentable.

Furthermore, the dependent claims include additional features that make those claims independently patentable.

For example, according to dependent claim 7, the substrate includes a cavity within which the light emitting device and optical monitor are enclosed.

The Office action alleges that it would have been obvious to use a cavity to enclose the solid-state laser and monitor photo-detector disclosed in the Cohen patent. Applicant respectfully disagrees. The use of a cavity can result in a smaller package because the plate can be positioned closer to the substrate. There is simply no suggestion of the claimed features in the Cohen patent.

At least for those additional reasons, claim 7, as well as its dependent claims, is patentable.

Similarly, according to claim 11, the optical module includes a focusing lens to focus light from the light emitting device that is transmitted through the plate. The focusing lens is located on the same side of the plate as the first and second reflective regions.

The Office action alleges that it would have been obvious to use a lens to focus the light emitted from the solid-state laser that is transmitted through the protective cover disclosed by the Cohen patent, because lenses are well known in the art to focus light. However, the proper inquiry is not whether lenses are well known in the art to focus light generally, but whether it would have been obvious to modify the disclosure of the Cohen patent to include a lens in the location recited in claim 11. Applicant submits that there is simply no suggestion of the subject matter of claim 11. As disclosed in connection with FIG. 10, without a focusing lens (42), some light emitted by the light emitting device (2) may not reach the first angled reflective region (44) as a result of dispersion. In contrast, the Cohen patent discloses that the width of the first reflective region is wide enough such that the addition of a focusing lens would be superfluous, because substantially all light originating from the solid-state laser would reach the angled reflective surface (62). (*See* FIG. 4). Therefore, there would have been no suggestion or motivation to utilize a focusing lens to collimate the light originating from the solid-state laser of the Cohen patent.

Claims 28-29 are patentable

Applicant submits that the subject matter of claim 28 would not have been obvious from the Hauer et al. patent.

Claim 28, amended to incorporate the subject matter of claim 27, recites a method comprising emitting light from a solid state device housed in an optical module that includes a cover that is transparent to light emitted by the light emitting device, wherein the light passes through the cover. The cover reflects a portion of the emitted light that passes through the cover,

wherein a portion of light is coupling light that is reflected at a first reflective region in a direction substantially perpendicular to a direction of light emitted by the light emitting device, but not subsequently reflected by a second reflective region, to an optical component other than an optical monitor.

An example of those features is illustrated in FIGS. 10 and 11 in which the optical component is identified by reference numeral 52, and the first and second reflective surfaces are identified, respectively, by reference numerals 44 and 46.

The Hauer et al. patent discloses emitting light (at a transmission wavelength) from a vertical cavity surface emitting laser (VCSEL). The light is reflected at a first surface (S31) and then is directed into the fiber (Fa). (*See* FIG. 1.) In contrast to the subject matter of pending claim 28, the light emitted by the VCSEL is not reflected “using a second reflective region to reflect some of the light reflected by the first region to an optical monitor housed in the optical module.”

The Hauer et al. patent also discloses that a portion of the light from the VCSEL can be allowed to penetrate the filter at the first surface S31. Such light (indicated by the dashed lines in FIG. 1) can be reflected off the surface of a photodiode (PD) and directed to a monitor diode (MD') mounted in a recess of one of the holders (T2, T3) (*see* FIG. 2). As illustrated in FIGS. 1 and 2, the light that is reflected by the photodiode (PD) and directed toward the monitor diode (MD') is not previously reflected by the surface of the depression (V32). Therefore, light is not directed to the monitor diode (MD') by “using a second reflective region to reflect some of the light reflected by the first region to an optical monitor housed in the optical module,” as recited in pending claim 4.

According to the embodiments of FIGS. 1 and 2 of the Hauer et al. patent, incoming light from the fiber (at a reception wavelength) is refracted by the first surface (S31) and subsequently is reflected by a second surface (V32) and directed to the photodiode (PD). As FIGS. 1 and 2 of the Hauer patent illustrate, the first surface (S31) does not reflect the incoming light, but instead refracts the light. The light is reflected only subsequently by the surface of the depression (V32)

and directed toward the photo diode (PD). The light from the fiber (Fa) also does not satisfy the features of pending claim 28.

Nor do any of the other embodiments disclosed by the Hauer et al. patent disclose or suggest the subject matter of claim 28.

At least for the foregoing reasons, claim 28, as well as its dependent claim 29, is patentable.

Applicant : Ralf Hauffe et al.  
Serial No. : 10/777,583  
Filed : February 12, 2004  
Page : 11 of 11

Attorney's Docket No.: 14069-015001

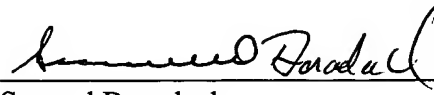
Conclusion

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

Enclosed is a check for the Petition for Extension of Time fee. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: 6/20/04

  
\_\_\_\_\_  
Samuel Borodach  
Reg. No. 38,388

Fish & Richardson P.C.  
Citigroup Center  
52nd Floor  
153 East 53rd Street  
New York, New York 10022-4611  
Telephone: (212) 765-5070  
Facsimile: (212) 258-2291